(6)

Scott Paper Company
Chester Operations
Front and Avenue of the States
Chester, Pennsylvania

Remedial Investigation and Cleanup Plan For The Former Underground Storage Tank Areas

August 1991

BCM
Engineers, Planners, Scientists
and Laboratory Services

REPORT

BCM

EXECUTIVE SUMMARY

Scott Paper Company operates a paper manufacturing and distribution center in Chester, Pennsylvania. In 1989, eight underground storage tanks were removed from various locations at the site. Subsequent environmental activities identified two areas where petroleum hydrocarbons from the tanks were present in the subsurface. These two areas were in the vicinity of the waste oil tank, and the area surrounding a kerosene and two xylene tanks. This report presents the results of the investigation which further defined the petroleum distribution in these areas.

The data collected during the investigation indicate the presence of PCBs in the soils surrounding the former waste oil tank location. Higher concentrations are present below the ground surface suggesting that the waste oil tank was the source for the PCBs. The maximum PCB concentration was 5.7 parts per million (ppm) in soil. PCBs have not been detected in the groundwater. The low concentrations and immobility of the PCBs indicate that they are not a concern at the Chester Operations facility.

Xylene, ethylbenzene and total petroleum hydrocarbons have been detected in soils and groundwater surrounding the former locations of the xylene and kerosene tanks. Concentrations in soil ranged to a maximum of 2,900 ppm of TPH, 590 ppm of xylene and 120 ppm of ethylbenzene. Maximum concentrations in groundwater were 15 ppm of TPH, 2.2 ppm of xylene and 0.52 ppm of ethylbenzene. BCM has proposed a cleanup plan to address the hydrocarbons in both soil and groundwater.

BCM

2.0 BACKGROUND

In October 1989, seven underground storage tanks were removed from the Chester Operations facility and one tank was abandoned in-place. The eight tanks had contained various products including gasoline, waste oil, diesel fuel, No. 6 oil, kerosene, No. 2 oil, and virgin xylene solvent. The tank removal activities and associated soil sampling were performed under the supervision of Buckhart-Horn, Inc. and are described in their report entitled: Underground Tank Removal Report for Scott Paper Company, November 6, 1989.

During the removal of the tanks, petroleum hydrocarbons were detected in the subsurface in the vicinity of several of the tanks. In response, Scott Paper contracted GTI to perform a preliminary assessment to determine whether the subsurface had been impacted by the former contents of any of the tanks. The assessment is described in GTI's report entitled: Hydrogeologic Assessment, Former Underground Storage Tank Locations, Scott Paper Company, June 1990. The assessment recommended additional environmental activity in two areas. These were:

- Adjacent to the former waste oil tank location, low concentrations of polychlorinated biphenyls (PCBs) were detected in a soil sample, and total petroleum hydrocarbons (TPH) were detected in both soil and groundwater;

- In the area where the two xylene tanks and the kerosene tank had been located, TPH, xylenes, and ethylbenzene were detected in the groundwater throughout the backfilled area.

Investigative activities presented in this report consisted of further defining the subsurface distribution of petroleum in the areas surrounding the kerosene, xylene and waste oil tanks and conducting testing to enable appropriate remedial design.

This report presents the results of the additional studies conducted in these areas. The Scott Paper Chester Operations facility is shown on the map in Figure 1. An enlargement of the area studied during this phase of work is shown in Figure 2.

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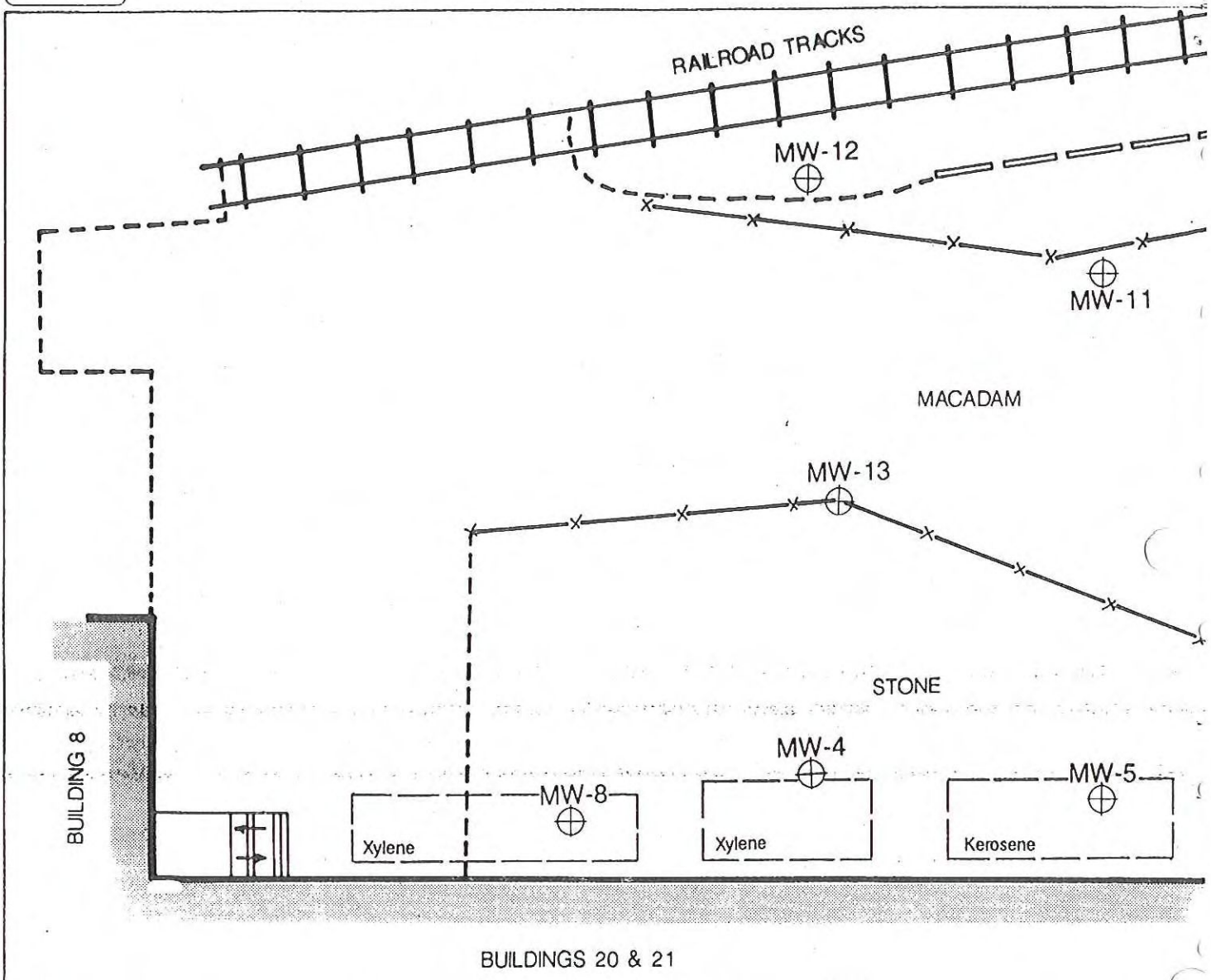

Waste

BCM Project No. 00-5366-05

0 20 FEET

NORTH

SCOTT PAPER COMPANY
Chester, Pennsylvania

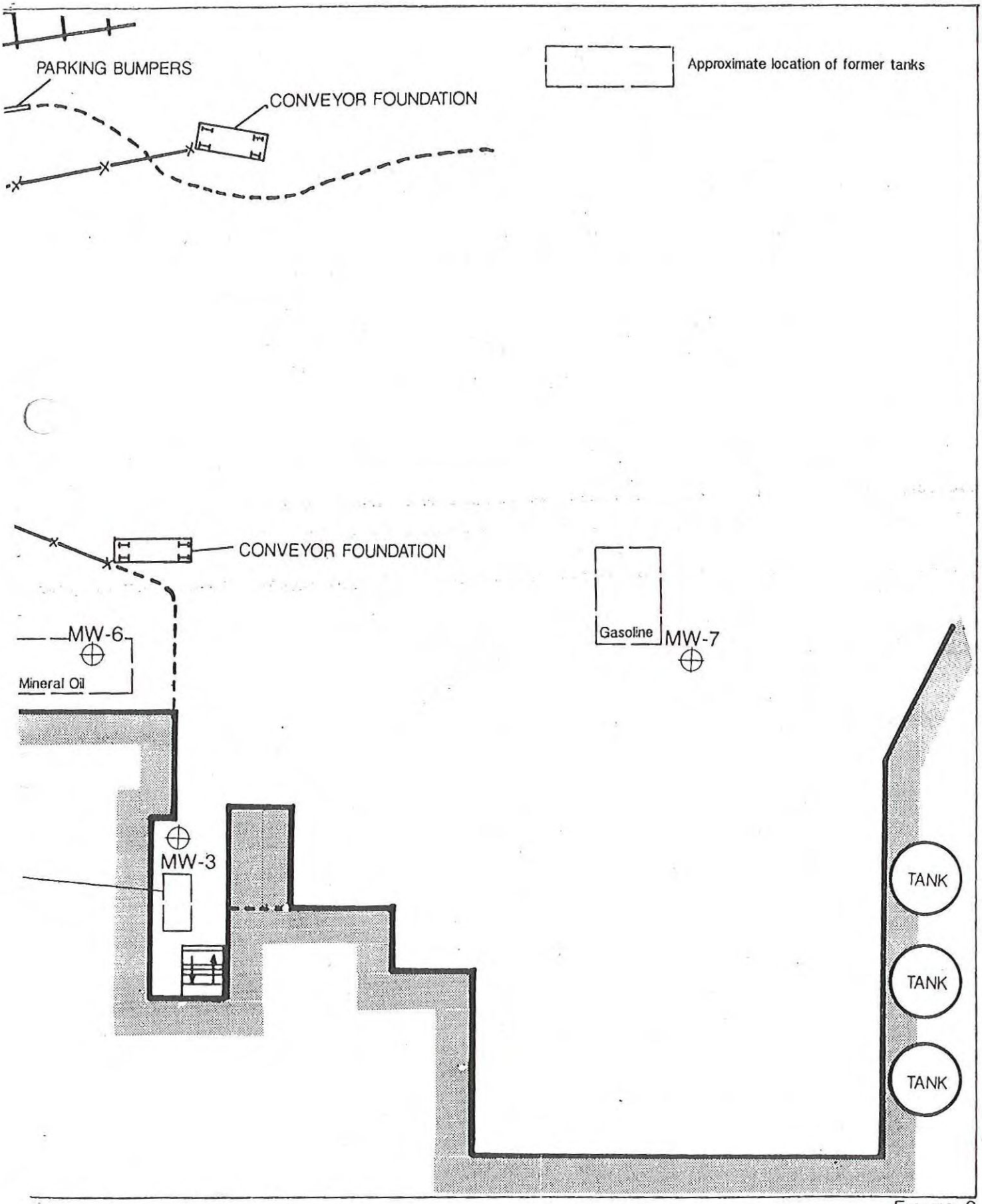

Figure 2
Study Area

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5.0 SUMMARY OF FINDINGS

The additional investigations performed at the Scott Paper Company Chester Operations facility indicate the following areas of concern to the north of Buildings 20 and 21:

- Ethylbenzene and xylenes are present in the soils and groundwater surrounding the former xylene and kerosene tank areas
- Concentrations of TPH with boiling points within the kerosene range are present in the soils and groundwater in this area
- PCBs are present in the soils in the area surrounding the former waste oil tank.

The concentrations of ethylbenzene, xylene, and TPH in the groundwater in this area have decreased steadily since the environmental investigations were initiated in 1989. This decrease is probably the result of the naturally occurring biologic degradation in the subsurface. Hydrocarbons are present in the shallow portion of the subsurface in either sand and gravel fill material or an organic silt and clay deposit. The fill material is present at a maximum depth of approximately 4 feet. The organic silt and clay is expected to be a relatively low permeability, low yielding formation. The water table in this area is present at a maximum depth of 6 feet below the ground surface. The groundwater outside the backfilled former tank areas is subject to less than 1 foot of tidal fluctuation.

SCOTT
SCOTT WORLDWIDE

July 29, 1991

Ms. Cynthia Steele
Pennsylvania Department of Environmental Resources
Bureau of Water Quality
Southeast Regional Office
Lee Park, Suite 6010
555 North Lane
Conshohocken, Pennsylvania 19428

Re: Groundwater Monitoring and Remediation
Scott Paper Company, Chester, Pennsylvania

Dear Ms. Steele:

This letter is intended to update your office concerning the progress on the groundwater monitoring/remediation near the former xylene and kerosene UST sites at our Chester operations. As you are aware, Scott had been utilizing the services of Groundwater Technology, Inc. as an environmental consultant for the project. In January 1991, Scott Paper Company and Groundwater Technology could not reach mutually agreeable contract terms. As a result, Scott has retained BCM Engineers, Inc. of Plymouth Meeting, Pennsylvania to assist Scott in completing the project. The change in consultants has resulted in a need to revise the original project schedule previously submitted to PADER on June 27, 1990.

Upon review of the existing data, BCM has recommended that a two-phase vacuum extraction procedure be used for the groundwater remediation at the site, rather than bioremediation, as previously proposed. Scott has reviewed the information supplied by BCM and now plans to use vacuum extraction technology.

To complete the groundwater investigation previously proposed, BCM has collected an additional round of groundwater samples from the area surrounding the former xylene and kerosene tank locations. When the laboratory results are received, a report summarizing data collected from July 1990 to the present will be prepared. The report will also include recommendations for remediation using the two-phase vacuum extraction and will be submitted to PADER for review.

Once your office has had an opportunity to review the report and recommendations, Scott would like to meet to discuss the proposed remediation. To avoid additional delays, we suggest that such a meeting be scheduled as soon as possible after your receipt of the report. Scott will contact you subsequent to submittal of the groundwater investigation report discussed above.

An updated schedule for completion of the investigation and initiation of remediation is presented below. This schedule assumes that Scott will be able to meet with PADER within one month of submitting the groundwater investigation report. The schedule also assumes that weather conditions are favorable for construction.

Submittal of investigation report	August 30, 1991
Scott Paper meeting with DER	October 01, 1991
Submit air discharge permit application	October 01, 1991
Complete engineering design	November 01, 1991
Receipt of air permits (assumed)	November 15, 1991
Complete installation of system	December 01, 1991
System start-up	December 01, 1991

At the meeting we can resolve any issues and hopefully secure the necessary PADER approvals to begin remediation.

If you have any questions or comments on this project, please call me at 215-499-6041.

Sincerely,

Anand Kuchibhotla

Anand Kuchibhotla
Process Engineer

cc: Mr. R. K. Anderson
Mr. D. R. Haldeman
Ms. E. A. Perry - BCM
Mr. J. R. Platko - Staff

jmh

SCOTT
SCOTT WORLDWIDE

September 11, 1991

Ms. Cynthia Steele
Pennsylvania Department of
Environmental Resources
Bureau of Water Quality
Southeast Regional Office
Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428

RE: Groundwater Monitoring and Remediation
Scott Paper Company, Chester, Pennsylvania

Dear Ms. Steele:

As mentioned in the previous letter (dated 7/29/91), enclosed herewith is the report on the groundwater monitoring/ remediation near the former xylene and kerosene UST sites at our Chester Operations. This report summarizes the data collected from July 1990 to the present. This report also includes recommendations for corrective action using the two-phase vacuum extraction.

Once your office has had an opportunity to review the report and recommendations, Scott would like to meet to discuss the proposed corrective action. To avoid additional delays, we suggest that such a meeting be scheduled as soon as possible after your receipt of the report. Scott will contact you subsequent to submittal of the groundwater investigation report discussed above.

At the meeting we can resolve any issues and hopefully secure the necessary PADER approvals to begin corrective action.

If you have any questions or comments on this project, please call me at (215) 499-6041.

Sincerely,

Anand Kuchibhotla

Anand Kuchibhotla
PROCESS ENGINEER

cc: Mr. R. K. Anderson
Mr. D. R. Haldeman
Mr. J. R. Platko - Staff
Ms. E. A. Perry - BCM

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF AIR QUALITY CONTROL

Request for Determination of Requirement
for Plan Approval/Operating Permit Application
(Submit in Triplicate)

Type of Source: Soil Venting

Date of Installation: 4th Qtr 1991

Owner of Source: Scott Paper Company

Employer I.D. No.: X 231065080

Mailing Address: Front and Avenue of the States

Contact Person: Mr. Anand Kuchibhotla

Telephone: (215) 499-6041

Location of Source(s):

Street Address: Market and Front Sts.

Municipality: Chester 19013

Estimated Emissions:

County: Delaware

Pollutant:	TPH	Xylene	Ethyl-Benzene	Total
Quantity lbs/hr	∠0.1	∠0.1	∠0.1	∠0.1
Quantity lbs/yr	∠1000	∠1000	∠1000	∠1000

X David R. Hallerman
Signature

X Environmental Specialist
Title

X 10-31-91
Date

OFFICIAL USE ONLY

Date Received: _____

Reviewed By: _____

Pursuant to the authority contained in 25 PA Code §127.14(8), the source(s) is exempted from the plan approval and permitting requirements. This determination does not exempt the source(s) from compliance with all other applicable air quality regulations.

Signature

Title

Date

The source(s) does not qualify for exemption from plan approval/permitting requirements under PA Code §127.14(8). plan approval application(s) must be submitted. The Department is prohibited from acting on an application until 30 days after the municipality and county have received notification by the company. Pertinent forms are attached.

Signature

Title

Date

Narrative Source Description (attach additional sheet(s) if necessary: (Include: process description, exhaust volume, stack data, schematic flow diagram, material data safety sheets, etc.)

SCOTT PAPER COMPANY SOIL VENTING
SOURCE DESCRIPTION

Soil and groundwater at the Scott Paper Company's manufacturing and distribution center in Chester, Pennsylvania contains volatile organic compounds (VOCs) resulting from leakage from three former underground storage tanks. Concentrations detected in soil ranged to a maximum of 2,900 ppm TPH, 590 ppm xylene and 120 ppm ethylbenzene. Concentrations detected in groundwater ranged to a maximum of 15 ppm TPH, 2.2 ppm xylene and 0.52 ppm ethylbenzene.

Scott proposes to remove VOCs from soil and groundwater at the former underground storage tank (UST) area using two phase vacuum extraction. In two phase vacuum extraction one or more wells are constructed in the area of concern and vacuum is applied to the subsurface by way of the wells. Air drawn through the soil by the vacuum entrains both vapor phase VOCs and water containing dissolved VOCs. VOCs and water are separated from the entraining air at the surface. The air is then treated and discharged to the atmosphere.

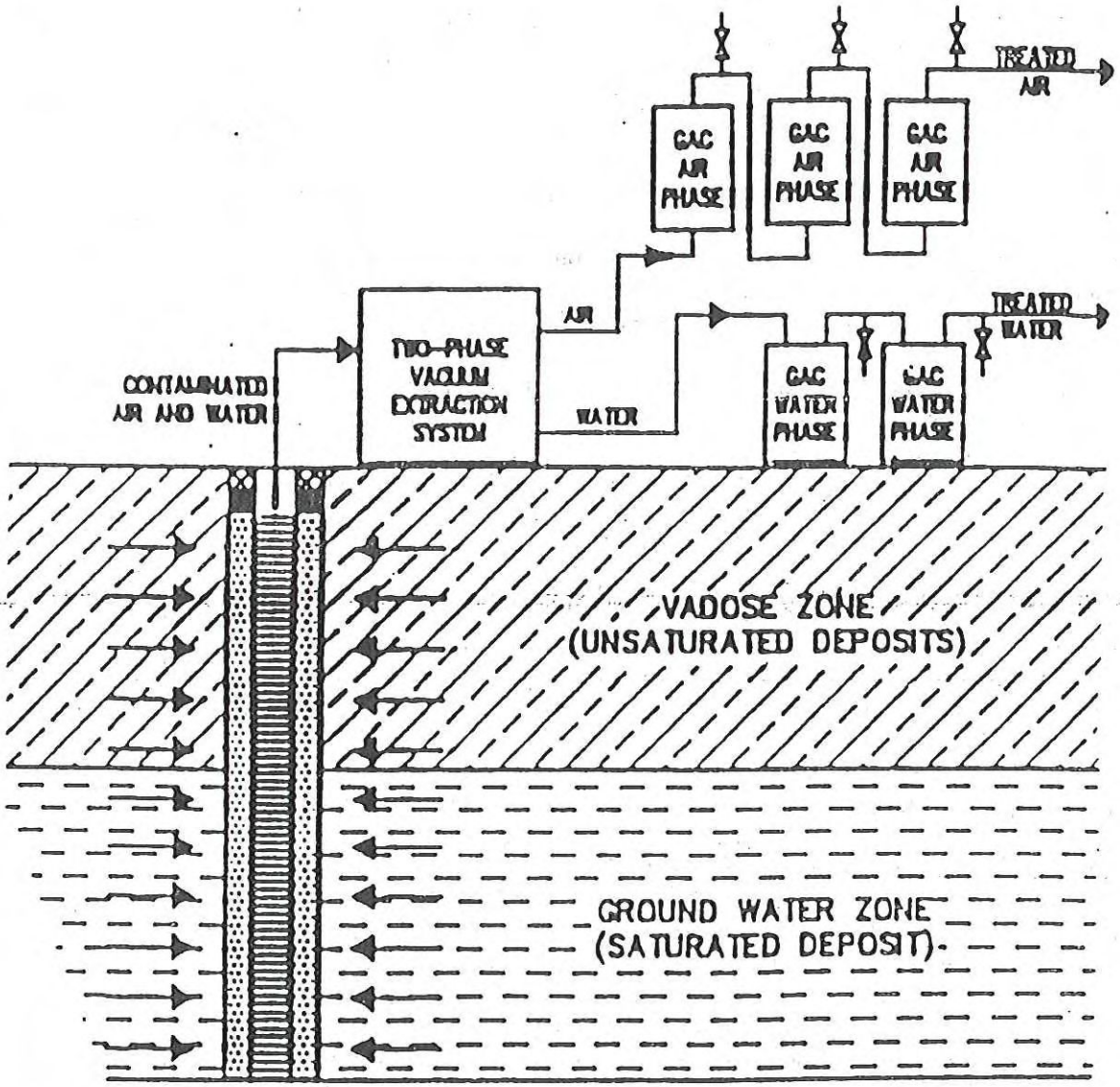
At the former UST area, vacuum will be created using a Roots type blower rated at 400 Actual Cubic Feet Per Minute at 12 inches of mercury vacuum. Water and air extracted from the ground will be separated in a knockout pot. The water will be routed to the facility's waste water treatment plant. The air will be treated using granular activated carbon.

Three carbon cannisters sized for an air flow rate of 400 Standard Cubic Feet Per Minute will be arranged in series. Air treatment effectiveness will be monitored using a portable photoionization detector (PID). The PID will be used to analyze vapors exiting the second cannister. Upon breakthrough (defined as 10 ppm) from the second cannister extraction operations will be shut down; the first cannister will be considered spent and will be removed. A fresh cannister will be added at the third position and operations will resume. Discharge to the atmosphere from the third cannister will also be monitored but is expected to be below detection limits of 1 ppm at all times.

Initially, the progress of remediation will be monitored by using the samples from the vapor-phase of the extraction line on a daily basis. Past experience indicates that VOC concentrations removed by vacuum extraction are highest during the initial few days of operation and decline thereafter. On that basis, monitoring will be reduced to a weekly basis after the first six weeks of operations.

OFFICIAL USE ONLY

Remarks:



ADVANTAGES

- NO IN-WELL PUMP
- HIGHER GROUND WATER FLOW RATES
- VOLATILES ARE EFFECTIVELY SEPARATED FROM WATER
- ELIMINATION OF AIR STRIPPER
- REDUCED AIR FLOW
- LESS OXYGENATION OF PRODUCED WATER (LESS BACTERIA GROWTH/FOULING AND CORROSION OF PROCESS COMPONENTS)
- REDUCED SPACE REQUIREMENTS
- LOWER COST

TWO-PHASE VACUUM EXTRACTION SCHEMATIC DIAGRAM

Narrative Source Description (attach additional sheet(s) if necessary):
(Include: process description, exhaust volume, stack data, schematic flow diagram, material data safety sheet, etc.)

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